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10-1412 DATA DOCUMENTS/INC.

## 17. Annotated references


[Backus 78] J. Backus. Can programming be liberated from the von Neumann style? A functional style and its algebra of programs. CACM, 21, 8, 613-641 (Aug. 1978). A different approach to applicative programming than ours, as it advocates the avoidance the use of names for objects.

[Burge 75] W.H. Burge. Recursive programming techniques. Addison-Wesley (1975). A good source of programming examples, including an entire section on streams.

[Church 1941] A. Church. The calculi of lambda-conversion. Princeton University Press (1941). A basic theoretical reference on applicative programming.

[Dijkstra 68] E.W. Dijkstra. Cooperating sequential processes. In F. Genuys(ed.), Programming languages, Academic Press (1968). Included because of the similarity of the type mutex and binary semaphores.

[Friedman and Wise 76] D.P. Friedman and D.S. Wise. CONS should not evaluate its arguments. in Michaelson and Milner (eds.), Automata, Languages, and Programming, 257-284, Edinburgh University Press (1976). Explains some of the philosophy behind lenient evaluation.

[Friedman and Wise 78] D.P. Friedman and D.S. Wise. The impact of applicative programming on multiprocessing. IEEE Trans. on Computers, C-27, 4, 289-296 (April 1978). Discusses one approach (somewhat different than ours) for exploiting multiple processors via an applicative language.

[Hearn 74] A.C. Hearn. Reduce 2 symbolic mode primer. Utah Symbolic Computation Group, Operating Note 5.1 (Oct. 1974).

[Henderson and Morris 76] P. Henderson and J.H. Morris, Jr. A lazy evaluator. Proc. Third ACM Conference on Principles of Programming Languages, 95-103 (1976). Presents a basic Lisp evaluator using the demand-driven approach.

[Henderson 80] P. Henderson. Functional programming. Prentice-Hall (1980). Discusses an approach quite similar to FGL, except an interpretive mode of execution is used. Some examples of applicative loops are given.





[Iverson 79] K.E. Iverson. Operators. ACM Toplas, 1, 2, 161-176 (Oct. 1979). Motivates some uses of functions which return and act on functions.

[Jayaraman and Keller 80] B. Jayaraman and R.M. Keller. Resource control in a demand-driven data-flow model. Proc. International Conference on Parallel Processing (1980). Discusses higher level primitives for resource management. These will be included in a forthcoming version of FGL.

[Kahn 74] G. Kahn. The semantics of a simple language for parallel programming. Proc. IFIP '74, 471-475 (1974). One of the germinal


DATA DOCUMENTS/INC. 10-1412

ideas on which FGL is based. Discusses dealing with streams applicatively, but lacks general data structuring facilities.

[Kahn and MacQueen 76] G. Kahn and D. MacQueen. Coroutines and networks of parallel processes. Proc. IFIP '77, 993-998 (1977). Another language which allows cyclic structures in the program, but which has a more imperative style.

[Keller 77] R.M. Keller. Semantics of parallel program graphs. University of Utah, Dept. of Computer Science, Tech. Rept. UUCS-77-110 (July 1977). An early version of FGL is explained.

[Keller 78] R.M. Keller. An approach to determinacy proofs. University of Utah, Dept. of Computer Science, Tech. Rept. UUCS-78-102 (March 1978). Argues the need for indeterminate operators to improve efficiency. Presents an alpha-beta search example which has been programmed in FGL.

[Keller, Lindstrom, and Patil 78] R.M. Keller, G. Lindstrom, and S. Patil. An architecture for a loosely-coupled parallel processor. University of Utah, Dept. of Computer Science, Tech. Rept. UUCS-78-105 (Oct. 1978). A precursor to the following reference. Contains an explanation of functions as values which was excised in that reference.

[Keller, Lindstrom, and Patil 79] R.M. Keller, G. Lindstrom, and S. Patil. A loosely-coupled applicative multi-processing system. AFIPS Proc., 613-622 (June 1979). The first published reference explaining the AMPS philosophy and operation.

[Keller, Lindstrom, and Patil 80] R.M. Keller, G. Lindstrom, and S. Patil. Data flow concepts for hardware design. Proc. Compcon, 105-111 (Feb. 1980). Another application of FGL.

[Keller 80a] Divide and CONCer: Data structuring for applicative multiprocessing. To appear in the Lisp Conference proceedings. (Aug. 1980). Discusses an alternative representation of list structures more amenable to exploitation of concurrency and virtual concatenation. A package of such functions may be found in <amps>conc.fgl.



[Keller 80b] Semantics and applications of function graphs. Unpublished manuscript (March 1980).

[Keller and Lindstrom 80] R.M. Keller and G. Lindstrom. Hierarchical analysis of a distributed evaluator. Proc. International Conference on Parallel Processing (1980). Further exposition on the FGL evaluator for AMPS.

[Landin 64] P.J. Landin. The mechanical evaluation of expressions. Computer J., 6, 4, 308-320 (Jan. 1964). A classic reference on applicative languages. Uses LET and WHERE notation similar to textual FGL.

[Landin 65] P.J. Landin. A correspondence between Algol 60 and Church's Lambda-Notation, CACM, 8, 2, 89-101 (Feb. 1965) and 8, 3, 158-165 (Mar. 1965). A follow up of [Landin 64].

DATA DOCUMENTS/INC. 10-1412

[Lindstrom and Keller 80] Programming paradigms in a graph-based Lisp extension. Unpublished manuscript (March 1980). Further examples using applicative loops and other FGL features.

[Marti 78] J.B. Marti. The Meta/Reduce translator writing system. Sigplan notices, 13, 10, 42-49 (Oct. 1978).

[Marti 79] J.B. Marti. RLISP -> LISP -> FGL machine translator and compiler. Utah Symbolic Computation Group, Operating Note No. 43 (Apr. 1979). Describes an early implementation of the FGL compiler.

[McCarthy 60] J. McCarthy. Recursive functions of symbolic expressions and their computation by machine, I. CACM, 5, 27-37 (1970). Explains the philosophy of Lisp.

[McCarthy 63] J. McCarthy. Towards a mathematical science of computation. IFIP '62, Proc. 21-28 (1963). Explains how to replace iteration with recursion.

[McCarthy, et al. 65] J. McCarthy, et al. Lisp 1.5 programmers manual. MIT Press (1965). Fundamental reference on Lisp concepts and examples.

[Morris, et al. 80] J.H. Morris, E. Schmidt, and P. Wadler. Experience with an applicative string processing language. Contains some interesting comments on demand-driven evaluation, not all of which necessarily hold in a multiprocessing implementation.

[Nori 79] A.K. Nori. A storage reclamation scheme for AMPS. M.S. Thesis, Dept. of Computer Science, University of Utah (Dec. 1979).

[Turner 79] D.A. Turner. A new implementation technique for applicative languages. Software - Practice and Experience, 9, 31-49 (1979). A language which has an implementation technique similar to that of FGL.



[Wadsworth 76] C.P. Wadsworth. Semantics and pragmatics of the lambda-calculus. Thesis, University of Oxford (1971).

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        pages="404-418")

@TechReport(McD73,
        key="McDermott",
        author="McDermott, D. and G. Sussman",
        fullauthor="D. McDermott and Gerald J. Sussman",
        title="The Conniver reference manual",
        number="259a",
        institution="MIT AI Lab",
        year="1973")

@Book(Fos70,
        key="Foster",
        author="Foster, C.",
        fullauthor="Caxton C. Foster",
        series="Computer Science Series",
        title="Computer Architecture",
        publisher="Van Nostrand Reinhold Company",
        address="New York",
        year="1970")
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DATA DOCUMENTS/INC. 10-1412

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@Book(Lew72,
        key="Lewin",
        author="Lewin, D.",
        fullauthor="Douglas Lewin",
        title="Theory and design of digital computers",
        publisher="Nelson",
        address="London",
        year="1972")

@Book(All78,
        key="Allen",
        author="Allen, J.",
        fullauthor="John Allen",
        title="Anatomy of Lisp",
        publisher="McGraw-Hill",
        year="1978")

@Article(Org79,
        key="Organick",
        author="Organick, E.",
        fullauthor="Elliott I Organick",
        volume="5",
        title="New directions in computer systems architecture",
        journal="Euromicro Journal",
        publisher="Euromicro",
        year="1979",
        pages="190-202")

@TechReport(Fri79,
        key="Frick",
        author="Frick, I.",
        fullauthor="Inge B. Frick",
        title="Manual for Standard Lisp",
        number="TR-2",
        institution="University of Utah Symbolic Computation Group",
        year="1979")
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MMMMMM    MMMMMM           III          SSS                 CCC                 333         333
MMMMMM    MMMMMM           III          SSS                 CCC                 333         333
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MMM    MMM   MMM           III          SSS                 CCC                             333
MMM    MMM   MMM           III          SSS                 CCC                             333
MMM    MMM   MMM           III          SSS                 CCC                             333
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MMM          MMM           III                      SSS     CCC                             333
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BBB          BBB           III          BBB          BBB        ......                111
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DATA DOCUMENTS/INC. 10-1412

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@article(Bobrow79,
        key="Bobrow",
        author="Bobrow, D. G. and Clark, D. W.",
        title="Compact Encodings of List Structure",
        organization="ACM",
        journal="TOPLAS",
        volume="1",
        year="1979",
        pages="266-286"
        )
@Article(Bochmann76,
        key="Bochmann",
        author="Bochmann, G. V.",
        volume="19",
        number="2",
        title="Semantic Evaluation from Left to Right",
        journal="CACM",
        publisher="ACM",
        address="New York, New York",
        year="1976",
        pages="55-62",
        annote="Describes how attribute grammars can be used to determine language semantics by a small number of passes over the de
        )
@InProceedings(Cohen79,
        key="Cohen",
        author="Cohen, R. and Harry, E.",
        title="Automatic Generation of Near-Optimal Linear-Time Translators For Non-Circular Attribute Grammars",
        organization="ACM",
        booktitle="Conference Record of the Sixth Annual ACM Symposium on Principles of Programming Languages",
        month="January",
        year="1979",
        pages="121-134",
        annote="This paper describes a new technique for creating translators
        from a limited form of attribute grammars.
  They prove that the translators produced are nearly optimal.",
        )
@article(Ford78,
        key="Ford",
        author="Ford, G. A.",
        title="Comments on Pascal, Learning how to Program, and
        Small Systems",
        journal="BYTE",
        volume="3",
        number="5",
        year="1978",
        pages="136"
        )
@InProceedings(Jazayeri75,
        key="Jazayeri",
        author="Jazayeri, M. and Walter, K. G.",
        title="Alternating Semantic Evaluator",
        organization="ACM",
        booktitle="Proceedings of the 1975 ACM Annual Conference",
        month="November",
        year="1975",
        pages="230-234",
        annote="Describes a technique for evaluating attribute grammars by
        alternating left to right and right to left passes over the derivation tree.
It also gives an algorithm for determining the number of passes necessary
        for a particular grammar.
```

DATA DOCUMENTS/INC. 10-1412

```
Finally, they show that the ability to perform passes in both directions, allows a less restricted set of attribute grammars to be p
        )
@TechReport(Johnson75,
        key="Johnson",
        author="Johnson, S. C.",
        title="YACC - Yet Another Compiler-Compiler",
        number="32",
        institution="Bell Laboratories",
        month="July",
        year="1975",
        annote="A description of YACC is presented.",
        )
@article(Johnson76,
        key="Johnson",
        author="Johnson, R. G. and Mueller, R. A.",
        title="Automated Generation of Cross-System Software
          for Micro-computers",
        organization="IEEE",
        Journal="Computer",
        volume="10",
        number="1",
        year="1977",
        month="January",
        pages="23-31"
        )
@Article(Knuth68,
        key="Knuth",
        author="Knuth, D. E.",
        volume="2",
        number="2",
        title="Semantics of Context Free Languages",
        Journal="Mathematical Systems Theory",
        year="1968",
        pages="127-145",
        annote="The first paper to describe attributed grammars.",
        )
@Article(Lunde77,
        key="Lunde",
        author="Lunde, A.",
        volume="20",
        number="3",
        title="Empirical Evaluation of Some Features of Instruction Set
          Processor Architectures",
        Journal="CACM",
        publisher="ACM",
        address="New York, New York",
        Month="March",
        year="1977",
        pages="143"
        )
@Article(Marcotty76,
        key="Marcotty",
        author="Marcotty, M.; Ledgard, H. F.; and Bochmann, G. V.",
        volume="8",
        number="2",
        title="A Sampler of Formal Definitions",
        Journal="ACM Computing Surveys",
        publisher="ACM",
        address="New York, New York.",
        year="1976",
```

```
        pages="191-276",
        annote="This is a very good survey of four major semantic
        description languages (W-grammers, VDL, Production System and Attribute Grammers).
  It describes each one in detail, defining a subset of the ASPEL language
        in each.
  It then analyzes each description and stresses strong and weak points.",
        )
 @InProceedings(Neel74,
        key="Neel",
        author="Neel, D. and Amirchchy, M.",
        title="Semantic Attributes and Improvement of Generated Code",
        organization="ACM",
        booktitle="Proceedings of the 1974 Annual ACM Conference",
        month="November",
        year="1974",
        pages="1-10",
        annote="Demonstrates that with a proper choice of attributes, an
        attribute grammar can be used to perform code optimizations during semantic evaluation.
  It also shows that basic blocks (a section of code with one entry point and one exit point, which is used in basic code optimizati
        )
 @Book(Osborne76,
        key="Osborne",
        author="Osborne, A.",
        series="An Introduction To Microcomputers",
        volume="II",
        title="Some Real Products",
        publisher="Adam Osborne and Associates, Inc.",
        address="Berkely, Ca.",
        year="1976",
        annote="This book covers all of the microcomputers currently
        available. It details the architecture, instruction set and
        sample program of each micro.",
        )
 @Article(Peuto77,
        key="Peuto",
        author="Peuto, B. L. and Shustek, L. J.",
        volume="10",
        number="1",
        title="Current Issues in the Architecture of Microprocessors",
        Journal="IEEE Computer",
        publisher="IEEE",
        address="New York, New York",
        Month="January",
        year="1977",
        pages="20"
        )
 @InProceedings(Sites78,
        key="Sites",
        author="Sites, R. L.",
        title="An Analysis of the CRAY-1 Computer",
        organization="ACM/IEEE",
        booktitle="Conference Proceedings of the 5th Annual Symposium On
         Computer Architecture",
        month="April",
        year="1978",
        pages="101-106",
        annote="Describes the major architectural features of the CRAY-1
        computer.  One of the interesting features is a fast set of buffer
        registers between the main registers and memory.  Another feature
        is a set of registers for performing vector operations.  This
```

```
        architecture makes designing an optimizing
        compiler an interesting problem.",
        )
@Phdthesis(Wampler79,
        author="Wampler, B. E.",
        key="Wampler",
        title="A  Hierarchical Model of Portable  I/O",
        school="Department of Computer Science, University of Utah",
        month="January",
        year="1979"
        )
@Book(Wegner68,
        key="Wegner",
        author="Wegner, P.",
        title="Programming Languages, Information Structures and Machine Organization",
        publisher="McGraw-Hill Book Company",
        address="New York, New York",
        year="1968",
        annote="An excellent book covering everything from implementation of computer languages to virtual operating system principl
        )
```

```
    AAAAAAAAA           RRRRRRRRRRRR           IIIIIIIII      TTTTTTTTTTTTTTT   HHH        HHH
    AAAAAAAAA           RRRRRRRRRRRR           IIIIIIIII      TTTTTTTTTTTTTTT   HHH        HHH
    AAAAAAAAA           RRRRRRRRRRRR           IIIIIIIII      TTTTTTTTTTTTTTT   HHH        HHH
AAA         AAA         RRR         RRR           III               TTT         HHH        HHH
AAA         AAA         RRR         RRR           III               TTT         HHH        HHH
AAA         AAA         RRR         RRR           III               TTT         HHH        HHH
AAA         AAA         RRR         RRR           III               TTT         HHH        HHH
AAA         AAA         RRR         RRR           III               TTT         HHH        HHH
AAA         AAA         RRR         RRR           III               TTT         HHH        HHH
AAA         AAA         RRRRRRRRRRRR              III               TTT         HHHHHHHHHHHHHHH
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AAA         AAA         RRRRRRRRRRRR              III               TTT         HHHHHHHHHHHHHHH
AAAAAAAAAAAAAAA         RRR   RRR                 III               TTT         HHH        HHH
AAAAAAAAAAAAAAA         RRR   RRR                 III               TTT         HHH        HHH
AAAAAAAAAAAAAAA         RRR   RRR                 III               TTT         HHH        HHH
AAA         AAA         RRR      RRR              III               TTT         HHH        HHH
AAA         AAA         RRR      RRR              III               TTT         HHH        HHH
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AAA         AAA         RRR         RRR        IIIIIIIII            TTT         HHH        HHH
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AAA         AAA         RRR         RRR        IIIIIIIII            TTT         HHH        HHH



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DATA DOCUMENTS/INC. 10-1412

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@Book(KNVOL1,
        key="knuth",
        author="D. Knuth",
        fullauthor="Donald E. Knuth",
        series="The Art of Computer Programming",
        volume="1",
        title="Fundamental Algorithms",
        howpublished="",
        publisher="Addison-Wesley",
        address="?",
        year="1970?",
        note="",
        annotation=""
        )
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DATA DOCUMENTS/INC. 10-1412

```
 CCCC   OOO   M   M  PPPP    III   L      EEEEE
C      O   O  MM MM  P   P    I    L      E
C      O   O  M M M  P   P    I    L      E
C      O   O  M   M  PPPP     I    L      EEEE
C      O   O  M   M  P        I    L      E
C      O   O  M   M  P        I    L      E
 CCCC   OOO   M   M  P       III   LLLLL  EEEEE



BBBB    III   BBBB          1
B   B    I    B   B        11
B   B    I    B   B         1
BBBB     I    BBBB          1
B   B    I    B   B         1
B   B    I    B   B   ..    1
BBBB    III   BBBB    ..   111



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@Article(Aho76,
        key="Aho, A. V.",
        author="Aho, A. V.  and Johnson, S.C.",
        volume="23",
        number="3",
        title="Optimal Code Generation for Expression Trees",
        journal="JACM",
        publisher="ACM",
        address="New York, New York",
        year="1976",
        pages="488-501",
        annote="Proves and supplies algorithm for optimal code generation for expression trees (not DAGs).  The code generation is f
        )
@Article(Aho77,
        key="Aho",
        author="Aho, A.V.; Johnson, S. C.; and Ullman, J. D.",
        volume="24",
        number="1",
        title="Code Generation for Expressions with Common Subexpressions",
        journal="JACM",
        publisher="ACM",
        address="New York, New York",
        year="1977",
        pages="146-160",
        annote="Proves that optimal code generation for Directed Acyclic Graphs (DAG) is an NP-complete problem.",
        )
@Article(Bruno75,
        key="Bruno",
        author="Bruno, J. L. and Lassagne, T.",
        volume="22",
        number="3",
        title="The Generation of Optimal Code for Stack Machines",
        journal="JACM",
        publisher="ACM",
        address="New York, New York",
        year="1975",
        pages="382-396",
        annote="Gives the algorithm to generate optimal code for an N deep stack, with RAM, for expression trees.  It also proves th
        )
@Article(Bruno76,
        key="Bruno",
        author="Bruno, J. L. and Sethi, R.",
        volume="23",
        number="3",
        title="Code Generation for a One Register Machine",
        journal="JACM",
        publisher="ACM",
        address="New York, New York",
        year="1976",
        pages="502-510",
        annote="Proves that generating optimal code for a simple one register machine, from a Directed Acyclic Graph (DAG) is an NP-
        )
@TechReport(Cattell77,
        key="Cattell",
        author="Cattell, R. G. G.",
        title="A Survey and Critique of Some Models of Code Generation",
        number="November",
        institution="Carnegie-Mellon University",
        year="1977",
        annote="A survey of the various techniques used for code generator generation.",
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        )
@PhDThesis(Cattell78,
        key="Cattell",
        author="Cattell, R. G. G.",
        title="Formalization and Automatic Derivation of Code Generators",
        school="Carnegie-Mellon University",
        address="Pittsburgh, Pa.",
        year="1978",
        annote="Describes a new system for performing code generation that is
        to be integrated into the PQCC compiler compiler at CMU.
  It uses ISP as an input machine specification language.
  The main failure of the work is that it uses heuristic search techniques to discover code sequences.",
        )
@InProceedings(Fraser79,
        key="Fraser",
        author="Fraser, C. W.",
        title="A Compact, Machine-Independent Peephole Optimizer",
        organization="ACM",
        booktitle="Sixth Annual ACM Symposium on Principles of Programming Languages",
        month="January",
        year="1979",
        pages="1-6",
        annote="Gives a discussion of a peephole optimizer driven by an ISP
        description of the target machine.
  The optimizer is written in LISP and produces fairly good code for the
        examples cited.
  It appears that the optimizer would not do as well for machine architectures more limited than the PDP-11.",
        )
@InProceedings(Glanville78,
        key="Glanville",
        author="Glanville, R. S. and Graham, S. L.",
        title="A New Method For Compiler Code Generation",
        organization="ACM",
        booktitle="Conference Record of the Fifth Annual ACM Symposium on Principles of Programming Languages",
        month="January",
        year="1978",
        pages="231",
        annote="Describes a new technique for automating the process of code
        generation.
  It views the code generation process as similar to syntax analysis.
  It is a clean solution, but is limited to a one to one relationship between high-level operation and machine operation.",
        )
@Book(Gries71,
        key="Gries",
        author="Gries, D.",
        title="Compiler Construction for Digital Computers",
        publisher="John Wiley & Sons, Inc.",
        address="New York, New York",
        year="1971",
        annote="An excellent book covering all aspects of compiler construction.",
        )
@InProceedings(Johnson78,
        key="Johnson",
        author="Johnson, S. C.",
        title="A Portable Compiler: Theory and Practice",
        organization="ACM",
        booktitle="Conference Record of the Fifth Annual ACM Symposium On Principles of Programming Languages",
        month="January",
        year="1978",
        pages="97-104",
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DATA DOCUMENTS/INC. 10-1412

```
        annote="This paper describes a new portable version of the C
        compiler.
  It gives the techniques used to construct the compiler.
  Of particular interest are the areas where theory was and was not useful in designing the compiler.",
        )
@Book(Lewis76,
        key="Lewis",
        author="Lewis, P. M.; Rosenkrantz, D. J.; and Stearns, R. E.",
        title="Compiler Design Theory",
        publisher="Addison - Wesley Publishing Co.",
        address="Reading, Mass.",
        year="1976",
        annote="An excellent book on the latest advances in compiler construction including the use of attribute grammars.",
        )
@Article(Lowry69,
        key="Lowry",
        author="Lowry, E. S. and Medlock, C. W.",
        volume="12",
        number="1",
        title="Object Code Optimization",
        journal="CACM",
        publisher="ACM",
        address="New York, New York",
        year="1969",
        pages="13-22",
        annote="A good discussion of some of the general techniques for code
        optimization.
  It also discusses some of the techniques specific to the OS/360 FORTRAN H optimizing compiler.",
        )
@Article(Sethi70,
        key="Sethi",
        author="Sethi, R. and Ullman, J. D.",
        volume="17",
        number="4",
        title="The Generation of Optimal Code for Arithmetic Expressions",
        journal="JACM",
        publisher="ACM",
        address="New York, New York",
        year="1970",
        pages="715-728",
        annote="Gives an algorithm to generate optimal code for expression trees on an N-register general purpose machine.",
        )
@techReport(Snyder75,
        author="Snyder, A.",
        key="Snyder",
        title="A Portable Compiler for the Language C",
        institution="MIT",
        type="Project MAC",
        number="TR-149",
        address="Cambridge, MASS",
        year="1975"
        )
@Book(Wulf75,
        key="Wulf",
        author="Wulf, W.; Johnson, R.; Weinstock, C.; Hobbs, S.;
and  Geschke, C.",
        title="The Design of an Optimizing Compiler",
        publisher="American Elsevier",
        address="New York, New York",
        year="1975",
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DATA DOCUMENTS/INC. 10-1412

```
annote="Describes the designs used in the optimizing BLISS compiler.",
)
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DATA DOCUMENTS/INC. 10-1412

```
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   SSSSSSSSSSSS      TTTTTTTTTTTTTTT      RRRRRRRRRRRR            IIIIIIIII         NNN         NNN         GGGGGGGGGGGG
   SSSSSSSSSSSS      TTTTTTTTTTTTTTT      RRRRRRRRRRRR            IIIIIIIII         NNN         NNN         GGGGGGGGGGGG
SSS                        TTT            RRR         RRR            III            NNN         NNN      GGG
SSS                        TTT            RRR         RRR            III            NNN         NNN      GGG
SSS                        TTT            RRR         RRR            III            NNN         NNN      GGG
SSS                        TTT            RRR         RRR            III            NNNNNN      NNN      GGG
SSS                        TTT            RRR         RRR            III            NNNNNN      NNN      GGG
SSS                        TTT            RRR         RRR            III            NNNNNN      NNN      GGG
   SSSSSSSSS               TTT            RRRRRRRRRRRR               III            NNN   NNN   NNN      GGG
   SSSSSSSSS               TTT            RRRRRRRRRRRR               III            NNN   NNN   NNN      GGG
   SSSSSSSSS               TTT            RRRRRRRRRRRR               III            NNN   NNN   NNN      GGG
            SSS            TTT            RRR   RRR                  III            NNN      NNNNNN      GGG   GGGGGGGGG
            SSS            TTT            RRR   RRR                  III            NNN      NNNNNN      GGG   GGGGGGGGG
            SSS            TTT            RRR   RRR                  III            NNN      NNNNNN      GGG   GGGGGGGGG
            SSS            TTT            RRR      RRR               III            NNN         NNN      GGG         GGG
            SSS            TTT            RRR      RRR               III            NNN         NNN      GGG         GGG
            SSS            TTT            RRR      RRR               III            NNN         NNN      GGG         GGG
SSSSSSSSSSSS               TTT            RRR         RRR         IIIIIIIII         NNN         NNN         GGGGGGGGG
SSSSSSSSSSSS               TTT            RRR         RRR         IIIIIIIII         NNN         NNN         GGGGGGGGG
SSSSSSSSSSSS               TTT            RRR         RRR         IIIIIIIII         NNN         NNN         GGGGGGGGG



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DATA DOCUMENTS/INC. 10-1412

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@string{
BCJ="British Computer Journal",
BIT="Nordisk Tidsskrift for Informationsbehandling",
BYTE="Byte",

CACM="Communications of the ACM",
CGIP="Computer Graphics and Image Processing",
CMU="Carnegie-Mellon University",
CMUCSD="Carnegie-Mellon University Computer Science Department",
CW="ComputerWorld",

DataM="Datamation",

IBMJR="IBM J. Res. and Develop.",
IBMJRD="IBM Journal of Research and Development",
IBMJST="IBM J. Syst. and Tech.",
IBMSJ="IBM Systems Journal",
IEEEIT="IEEE Transactions on Information Theory",
IEEEPAMI="IEEE Transactions on Pattern Analysis and Machine Intelligence",
IEEESMC="IEEE Transactions on Systems Man and Cybernetics",
IEEETC="IEEE Transactions on Computers",
IEEETSE="IEEE Transactions on Software Engineering",

IJCM="International Journal of Computer Mathematics",
IPL="Information Processing Letters",
ISJ="Information Sciences Journal",

JACM="Journal of the ACM",
JCSS="Journal of Computation and Systems Sciences",

ProcIEEE="Proceedings of the IEEE",

SciAm="Scientific American",

SIAMJC="SIAM Journal of Computing",
SIGPLAN="SIGPLAN Notices",
SP&E="Software: Practice and Experience",

TOPLAS="ACM Transactions on Programming Languages and Systems",
TODS="ACM Transactions on Database Systems",
TOMS="ACM Transactions on Mathematical Software",
TUM='Technische Universit@J[a]t M@J[u]nchen',
TUMIF='Technische Universit@J[a]t M@J[u]nchen, Institut f@J[u]r Informatik',

UTAH="University of Utah",
UTAHCSD="University of Utah Computer Science Department",

USCISI="USC/Information Sciences Institute",
}
@string(
SRIAI="SRI International, AI Center",
SUAI="Stanford University, AI Laboratory",
SUCSD="Stanford University, Computer Science Department",
IJCAI73="Proc. 3rd International Joint Conference on Artificial Intelligence",
IJCAI75="Proc. 4th International Joint Conference on Artificial Intelligence",
IJCAI77="Proc. 5th International Joint Conference on Artificial Intelligence")
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